# INSPECTION AND ACCEPTANCE OF EPOXY INJECTION RESINS

## GENERAL

Epoxy injection resins shall meet the requirements of the applicable Iowa Department of Transportation Specifications.

## ACCEPTANCE

Acceptance of epoxy injection resins for use of Department of Transportation projects will be on the basis of manufacturer and brand name approval.

Approved manufacturers and brands names for two different types of applications are listed in Appendixes A and B.

## MANUFACTURER AND BRAND NAME APPROVAL

To obtain approval for epoxy injection resins under Appendices A and B, the manufacturer shall submit the following items to the Office of Materials in Ames, Iowa:

1. Product identification including brand name and product number
3. Current Material Safety Data Sheet (MSDS)
2. Complete manufacturer recommendations for usage
4. A representative sample of approximately 1 gallon (3.8 liters)

The laboratory evaluation shall consist of the following tests:

- Pot Life: AASHTO T 237-73, Sec. 2 and 3, -- 12 minutes, minimum

- 100 grams of mixed epoxy in a 250 ml polypropylene plastic beaker

- Viscosity: AASHTO T 237-73, Sec. 7-9, except that a Brookfield viscometer, Model LV or LVF, may be used, -- 10 poises maximum.

- Salt Resistance Test: A specimen made from the mixed components and cured for 21 days at room temperature shall be immersed in a 10% NaCl solution for 28 days. Any evidence of softening of the specimen shall constitute failure.

- Flexural Strength: AASHTO T 97.

- Cast 4 in. x 4 in. x 18 in. (102 mm x 102 mm x 457 mm) concrete beams from the following concrete mix:

    A. The concrete shall be a C-3 paving mixture with an approximate cement content of 604 lb./yd.$^3$ (9675 kg/m$^3$).

B. The maximum water-cement ratio shall be 0.488.

C. The coarse aggregate shall have 95-100% passing the 3/4 in. (19 mm) sieve and 0% passing the No. 8 sieve.

D. The beams shall have a minimum flexural strength of 4.14 MPa (600 psi) when moist-room cured for 28 days. Beams shall be sawed transversely at the midpoint, with the sawed faces scrubbed thoroughly with a stiff bristled fiber brush and water.

Bond tests shall be as follows:

A. 14-day cure (dry): Stand two of the concrete beam sections on end with sawed faces up. Coat both surfaces with the mixed resin, filling all voids and leaving excess on one section. Place the other section on top with the coated ends together, and align the faces. Three bonded beams shall be air cured for 14 days and tested according to AASHTO T 97, -- 2.76 MPa (400 psi), minimum.

B. 14-day cure (moist): Soak the sawed concrete beams in water for two hours prior to bonding. Wipe the excess water from the beams and bond immediately as in (A). Cure three beams in air 24 hours and then in a moist room for an additional 13 days. Test according to AASHTO T 97, -- 2.76 MPa (400 psi), minimum.

C. Lime-water cure: Bond three beams as in (A) and cure for 14 days in air, then soak the bonded beams in lime-saturated water for 28 days. Test according to AASHTO T 97, -- 2.76 MPa (400 psi), minimum.

Appendix A lists the approved manufacturers and brand names of epoxy injection resins for delaminated bridge deck repair. Appendix B lists the approved manufacturer and brand names of epoxy injection resins for crack repair. This material is intended for repair work on cracked concrete structures such as abutments, wingwalls, piers, etc.

Approval of epoxy injection resins may be withdrawn because of deficient monitor test results, product changes made after original approval, or unsatisfactory field performance.

## CERTIFICATION

The manufacturer shall file a certification at the beginning of each calendar year stating that the material supplied during that year shall be identical with the formulation previously tested and approved by the Office of Materials.

## MONITOR SAMPLING AND TESTING

The Office of Materials may sample and test epoxy injection resins at any time to verify compliance with specification requirements.